APPENDIX B

Strategies to Improve Immunization Levels

Standards for Child and Adolescent Immunization Practices

Copies may be requested from:

Centers for Disease Control and Prevention
National Immunization Program
Resource Center
1600 Clifton Road
Mailstop E-34
Atlanta, GA 30333-0418

Online ordering is available through:
www.cdc.gov/nip/publications

Introduction

In 1992, the National Vaccine Advisory Committee (NVAC), in collaboration with the Ad Hoc Working Group for the Development of Standards for Pediatric Immunization Practices, a working group representing public and private agencies with input from state and local health departments, physician and nursing organizations, and public and private providers, developed a set of standards as to what constitutes the most essential and desirable immunization policies and practices. These standards were endorsed by a variety of medical and public health organizations and represented an important element in our national strategy to protect America's children against vaccine-preventable diseases.

Since that time, vaccine delivery in the US has changed in several important ways. First, vaccination coverage rates among preschool children have increased substantially and are now monitored by the National Immunization Survey.[1 2] Second, vaccination of children has shifted markedly from the public to the private sector,[3 4 5] with an emphasis on vaccination in the context of primary care and the Medical Home.[6]

The Vaccines for Children Program has provided critical support to this shift by covering the cost of vaccinations for the most economically disadvantaged children and adolescents. Third, the development and introduction of performance measures, such as the National Committee for Quality Assurance's HEDIS (Health Plan Employer Data and Information Set),[7] have focused national attention upon the quality of preventive care, including vaccination. Finally, high quality research in health services has helped to refine strategies for raising and sustaining vaccination coverage levels among children, adolescents, and adults.[8]

Health care professionals who vaccinate children and adolescents continue to face important challenges. These challenges include a diminishing level of experience-among patients, parents and physicians-with the diseases that vaccines prevent, the ready availability of vaccine-related information that may be inaccurate or misleading, the increasing complexity of the vaccination schedule, and the failure of many health plans to pay for the costs associated with vaccination. In addition, recommendations from the Advisory Committee on Immunization Practices (ACIP),the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP) and the American Medical Association (AMA) in 1996 underscore the need to focus on adolescent vaccination.[9]

In this context, NVAC, along with partners representing federal agencies, state and local health departments, and professional organizations, revised and updated the Standards during 2001-02 to reflect these changes and challenges in vaccine delivery. The revision was approved by NVAC on February 8, 2002 and distributed widely among a variety of medical and public health organizations for review and endorsement. More than 40 organizations have formally endorsed the Standards for Child and Adolescent Immunization Practices.

The Standards are directed toward "health care professionals," an inclusive term for the many persons in clinical settings who share in the responsibility for vaccination of children and adolescents: physicians, nurses, mid-level practitioners (e.g., nurse practitioners, physician assistants), medical assistants, and clerical staff. In addition to this primary audience, the Standards are intended to be useful to public health professionals, policy makers, health plan administrators, employers who purchase health care coverage, and others whose efforts shape and support the delivery of vaccination services.

Of note, the use of the term "standards" should not be confused with a minimum standard of care. Rather, these Standards represent the most desirable immunization practices, which health care professionals should strive to achieve. Given current resource limitations, some health care professionals may find it difficult to implement all of the Standards, because of circumstances over which they have little control. The expectation is that, by summarizing best immunization practices in a clear and concise format, the Standards will assist these providers in securing the resources necessary to implement this set of recommendations.

By adopting these Standards, health care professionals can enhance their own policies and practices, making achievement of vaccination objectives for children and adolescents as outlined in Healthy People 2010, a nationwide health promotion and disease prevention agenda from the U.S. Department of Health and Human Services,[10] both feasible and likely. Achieving these objectives will improve the health and welfare of all children and adolescents as well as the communities in which they live.

Standards for Child and Adolescent Immunization Practices

Availability of vaccines

1. Vaccination services are readily available.
2. Vaccinations are coordinated with other health care services and provided in a Medical Home[6] when possible.
3. Barriers to vaccination are identified and minimized.
4. Patient costs are minimized.

Assessment of vaccination status

5. Health care professionals review the vaccination and health status of patients at every encounter to determine which vaccines are indicated.
6. Health care professionals assess for and follow only medically accepted contraindications.

Effective communication about vaccine benefits and risks

7. Parents/guardians and patients are educated about the benefits and risks of vaccination in a culturally appropriate manner and in easy-to-understand language.

Proper storage and administration of vaccines and documentation of vaccinations

8. Health care professionals follow appropriate procedures for vaccine storage and handling.
9. Up-to-date, written vaccination protocols are accessible at all locations where vaccines are administered.
10. Persons who administer vaccines and staff who manage or support vaccine administration are knowledgeable and receive on-going education.
11. Health care professionals simultaneously administer as many indicated vaccine doses as possible.
12. Vaccination records for patients are accurate, complete, and easily accessible.
13. Health care professionals report adverse events following vaccination promptly and accurately to the Vaccine Adverse Event Reporting System (VAERS) and are aware of a separate program, the National Vaccine Injury Compensation Program (VICP).
14. All personnel who have contact with patients are appropriately vaccinated.

Implementation of strategies to improve vaccination coverage

15. Systems are used to remind parents/guardians, patients, and health care professionals when vaccinations are due and to recall those who are overdue.
16. Office- or clinic-based patient record reviews and vaccination coverage assessments are performed annually.
17. Health care professionals practice community-based approaches.

The Standards

Availability of vaccines

1. Vaccination services are readily available.

All health care professionals who provide primary care to children and adolescents should always include routinely recommended vaccines as a part of the care they deliver in the Medical Home.[6]

For some children and adolescents, the main contact with the health care system is not in a primary care provider's office, and therefore, opportunities for vaccination may be missed. Thus, specialists and health care professionals in settings such as schools and school health clinics, sports physical clinics, family planning clinics, sexually transmitted disease (STD) clinics, and substance abuse treatment centers, should assess each patient's vaccination status and either offer indicated vaccines or refer for vaccination if necessary.

Information on vaccines administered outside the primary care setting should be communicated to the primary care provider.

2. Vaccinations are coordinated with other health care services and provided in a Medical Home[6] when possible.

Ideally, vaccines should be given as part of comprehensive health care. In primary care settings, vaccination services should be coordinated with routine well-care visits and other visits. Patients vaccinated in other settings should be encouraged to receive subsequent vaccines in their primary care setting. Patients without a primary care provider should be assisted with identifying one.

3. Barriers to vaccination are identified and minimized.

Barriers to receiving vaccines include delays in scheduling appointments, requiring a well-care visit, long waiting periods in the office, and lack of culturally and age-appropriate educational materials. A physical exam, while an important part of well care, should not be required before administering vaccines: simply observing the patient and questioning about the patient's health status, immunization history, and vaccine contraindications are sufficient. In addition, vaccination-only visits should be available.

Health care professionals should seek advice from parents/guardians and patients to identify ways to make vaccination services easier to use.

4. Patient costs are minimized.

Out-of-pocket costs-including vaccine, administration, and office visit fees-should be as low as possible for all patients, and no child or adolescent should be denied vaccination because of inability to pay.

Resources should be identified to keep patient vaccination costs as low as possible. Free vaccine is available through some public programs, although health care professionals offering these vaccines may charge a reasonable administration fee. Sources of publicly funded vaccines include the Vaccines for Children (VFC) Program, Public Health Service Section 317 grants to States, and state or local programs. Children and adolescents should be screened for their eligibility to receive vaccines through these programs. Vaccinations provided through VFC or Section 317 grants may not be denied because of an inability to pay the administration fee, and health care professionals should assure that parents/guardians and patients are aware of this requirement (applies to all vaccines purchased using Centers for Disease Control and Prevention contracts, regardless of the setting-private or public-in which the vaccines are administered).

To minimize costs for patients, health plans and insurance plans should include the provision and administration of all routinely recommended vaccines as a covered benefit for all children and adolescents. Furthermore, to minimize costs for health care professionals, purchasers and health plans should reimburse health care professionals adequately for delivering vaccines, including the time required for vaccine administration and for communication about vaccine benefits and risks.

** Further information*
CDC maintains a web page about VFC on the Internet at: www.cdc.gov/nip/vfc

Assessment of vaccination status

5. Health care professionals review the vaccination and health status of patients at every encounter to determine which vaccines are indicated.

Health care professionals should review the vaccination status of all patients at all health care visits to minimize the number of missed opportunities to vaccinate. This review should determine if the patient has received any vaccinations elsewhere or is at high risk for disease or undervaccination. This information should be documented in the patient's chart and preventive health summary. Health care professionals who do not offer vaccinations should refer patients to a primary care provider for needed vaccinations.

6. Health care professionals assess for and follow only medically accepted contraindications.

Withholding vaccinations due to medical concerns that are not contraindications results in missed opportunities for prevention. Health care professionals should ask about any condition or circumstance that might indicate a vaccination should be withheld or delayed and about prior adverse events temporally associated with any vaccination.

Health care professionals should support their decisions about what constitutes a contraindication or deferral for each vaccine by consulting the Guide to Contraindications to Vaccinations published by CDC (available on the Internet at: www.cdc.gov/nip/recs/contraindications.pdf), the harmonized recommendations of the ACIP, AAP,and AAFP (available on the Internet at: www.cdc.gov/nip/recs/child-schedule.htm#Printable), the AAP's Red Book, and other relevant recommendations, Vaccine Information Statements, and manufacturers' package inserts. Contraindications and deferrals should be documented in the medical record.

Effective communication about vaccine benefits and risks

7. Parents/guardians and patients are educated about the benefits and risks of vaccination in a culturally appropriate manner and in easy-to-understand language.

Health care professionals should allow sufficient time with parents/guardians and adolescent patients to discuss the benefits of vaccines, the diseases they prevent, any known risks from vaccines, the immunization schedule and the need to receive vaccines at the recommended ages, and the importance of bringing the patient's hand-held vaccination record to each health care visit. Health care professionals should encourage parents/guardians and adolescent patients to take responsibility for ensuring that the patient is fully vaccinated.

For all commonly used childhood vaccines, all health care professionals are required by federal law to give Vaccine Information Statements (VIS) to vaccine recipients or their parents/guardians at each visit. A VIS is a vaccine-specific, two-page information sheet, produced by CDC, which describes the benefits and risks of a vaccine. If necessary, health care professionals should supplement the VIS with oral explanations or other written materials that are culturally and linguistically appropriate. Health care professionals should review written materials with patients and their parents/guardians and address questions and concerns.

Health care professionals should encourage parents/guardians and adolescent patients to inform the health care professional of adverse events following the vaccine to be administered and explain how to obtain medical care, if necessary.

See Standard 13 for a description of the Vaccine Adverse Events Reporting System (VAERS).

** Further information*
General vaccination information for health care professionals, parents, and members of the public may be obtained by calling the CDC National Immunization Information Hotline at 1-800-232-2522 (English) or 1-800-232-0233 (Spanish). Information about vaccine risk communication for health care professionals can be found on the Internet at: www.cdc.gov/nip/vacsafe/research/peds.htm and in the latest edition of the Red Book. Vaccine Information Statements are available in English and numerous other languages from State health departments and on the Internet at: www.cdc.gov/nip/publications/VIS/default.htm and www.immunize.org
Recommendations for national standards for culturally and linguistically appropriate services (CLAS) in health care may be found on the Internet at: www.omhrc.gov/omh/programs/2pgprograms/finalreport.pdf

Proper storage and administration of vaccines and documentation of vaccinations

8. Health care professionals follow appropriate procedures for vaccine storage and handling.

Vaccines should be handled and stored as recommended in the manufacturers' package inserts; the expiration date for each vaccine should be noted. Temperatures at which vaccines are stored and transported should be monitored and recorded twice daily. Summary information about vaccine storage and handling procedures are also available from state and local health departments and CDC.

Health care professionals should monitor vaccine inventory and undertake efforts to reduce wastage and loss.

** Further information*
CDC-recommended storage and handling procedures are available from CDC by calling 404-639-8222.

9. Up-to-date, written vaccination protocols are accessible at all locations where vaccines are administered.

To promote the safe and effective use of vaccines, health care professionals should maintain written protocols that detail the following: vaccine storage and handling; the recommended vaccination schedule, vaccine contraindications, and administration techniques; treatment and reporting of adverse events; vaccine benefit and risk communication; and

vaccination record maintenance and accessibility.

These protocols should be consistent with established guidelines, reviewed frequently, and revised as needed to assure that they remain up-to-date.

10. Persons who administer vaccines and staff who manage or support vaccine administration are knowledgeable and receive on-going education.

Health care professionals or others who administer vaccinations should be knowledgeable and receive continuing education in vaccine storage and handling; the recommended vaccine schedule, contraindications, and administration techniques; treatment and reporting of adverse events; vaccine benefit and risk communication; and vaccination record maintenance and accessibility. With appropriate training, and in accordance with state law/regulation/policy, persons other than physicians and nurses may administer vaccines. In addition, other staff should receive training and continuing education related to their specific roles and responsibilities that affect vaccination services.

** Further information CDC sponsors distance-based training opportunities (e.g., satellite broadcasts, web-based training, videotapes, self-administered print materials) for health care professionals. Information about training is available on the Internet at: www.cdc.gov/nip/ed*

11. Health care professionals simultaneously administer as many indicated vaccine doses as possible.

Administering vaccines simultaneously (at the same visit), in accordance with recommendations from the Advisory Committee on Immunization Practices, the American Academy of Pediatrics, and the American Academy of Family Physicians, is safe, effective, and indicated. Although the immunization schedule provides age flexibility for administering certain vaccine doses, simultaneous administration decreases the number of visits needed and the potential for missed doses, and enables earlier protection. When indicated vaccines are not simultaneously administered, arrangements should be made for the patient's earliest return to receive the needed vaccination(s).

** Further information*
Additional information on the safety of simultaneous vaccination may be found on the Internet at: www.cdc.gov/nip/vacsafe/research/simultaneous.htm

12. Vaccination records for patients are accurate, complete, and easily accessible.

Vaccination records for patients should be recorded on a standard form in an easily accessible location in the medical record to facilitate rapid review of vaccination status. Accurate record keeping helps to ensure that only needed vaccinations are given. As

required by federal law (42 US Code 300aa-25), health care professionals should assure that records contain the following information for each vaccination: the date of administration, the vaccine manufacturer and lot number, the signature and title of the person administering the vaccine, and the address where the vaccine was given. Vaccine refusal should also be documented.

The medical record maintained by the primary care provider should document all vaccines received, including those received at a specialist's office or in another health care setting. When a health care professional who does not routinely care for a patient vaccinates that patient, the patient's primary care provider should be informed.

All vaccinations administered should be reported to state or local immunization registries, where available, to ensure that each patient's vaccination history remains accurate and complete. Registries also may be useful for verifying the vaccination status of new patients, determining which vaccines are needed at a visit, printing official records, and providing reminders and recalls to parents.

Health care professionals should assure that each patient has a hand-held vaccination record that documents each vaccine received, including the date and the name of the health care professional who administered the vaccine. Health care professionals should encourage parents/guardians and adolescent patients to bring the patient's hand-held record to each health care visit so it can be updated.

** Further information*
The CDC maintains an Immunization Registry Clearinghouse. Information about this clearinghouse is available on the Internet at: www.cdc.gov/nip/registry/

13. Health care professionals report adverse events following vaccination promptly and accurately to the Vaccine Adverse Event Reporting System (VAERS) and are aware of a separate program, the National Vaccine Injury Compensation Program (VICP).

Health care professionals should promptly report all clinically significant adverse events following vaccination to the Vaccine Adverse Event Reporting System (VAERS) even if the health care professional is not certain that the vaccine caused the event. Health care professionals should document in detail the adverse event in the patient's medical record as soon as possible. Providers should be aware that parents/guardians and patients may report to VAERS, and that if they choose to do so, they are encouraged to seek the help of their health care provider.

The National Vaccine Injury Compensation Program (VICP) is a no-fault system that compensates persons of any age for injuries or conditions that may have been caused

by a vaccine recommended by CDC for routine use in children. Health care professionals should be aware of the VICP in order to address questions raised by parents/guardians and patients.

Since VAERS and VICP are separate programs, a report of an event to VAERS does not result in the submission of a compensation claim to VICP. A brief description and contact information for both programs is provided on each Vaccine Information Statement for those vaccines covered by the National Childhood Vaccine Injury Act.

** Further information*
Information about VAERS, as well as guidance about how to obtain and complete a VAERS form can be found on the Internet: www.vaers.org or by calling 1-800-822-7967. Information about the VICP is available on the Internet at: www.hrsa.gov/osp/vicp or by calling 1-800-338-2382.

14. All personnel who have contact with patients are appropriately vaccinated.

Health care professionals and other personnel who have contact with patients should be appropriately vaccinated. Offices and clinics should have policies to review and maintain the vaccination status of staff and trainees.

** Further information*
ACIP recommendations for vaccinating health care workers are available on the Internet at: ftp://ftp.cdc.gov/pub/publications/mmwr/rr/rr4618.pdf

Implementation of strategies to improve vaccination coverage

15. Systems are used to remind parents/guardians, patients, and health care professionals when vaccinations are due and to recall those who are overdue.

Evidence demonstrates that reminder/recall systems improve vaccination coverage.[11]

Patient reminder/recall interventions inform individuals that they are due (reminder) or overdue (recall) for specific vaccinations. Patient reminders/recalls can be mailed or communicated by telephone; an autodialer system can be used to expedite telephone reminders. Patients who might be at high risk for not complying with medical recommendations, for example those who have missed previous appointments, should receive more intensive follow-up.

Similarly, provider reminder/recall systems alert health care professionals when vaccines are due or overdue. Notices should be placed in patient charts or communicated to health care professionals by computer or other means. Immunization registries can facilitate automatic generation of reminder/recall notices.

16. Office- or clinic-based patient record reviews and vaccination coverage assessments are performed annually.

Evidence shows that assessments are most effective in improving vaccination coverage in a practice when they combine chart reviews to determine coverage with the provision of results to health care professionals and staff.[11]

Effective interventions also may incorporate incentives or compare performance to a goal or standard. Coverage should be assessed regularly so that reasons for low coverage in the practice, or in a sub-group of patients, are identified and addressed. For assistance in conducting vaccination coverage assessments, health care professionals should contact their state or local immunization program.

17. Health care professionals practice community-based approaches.

All health care professionals share in the responsibility to achieve the highest possible degree of community protection against vaccine-preventable diseases.

Immunization protects the entire community as well as the individual. No community is optimally protected against vaccine-preventable diseases without high vaccination coverage. Therefore, health care professionals should consider the needs of the community (especially underserved populations) as well as those of their patients. Community-based approaches may involve working with partners in the community, including public health departments, managed care organizations, other service providers such as the US Department of Agriculture's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), advocacy groups, schools, and service organizations to determine community needs and develop vaccination services that address these needs.

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Organizations providing endorsement for the revised Standards for Child and Adolescent Immunization Practices

Advisory Committee on Immunization Practices

Albert B. Sabin Vaccine Institute

Ambulatory Pediatric Association

American Academy of Family Physicians

American Academy of Pediatrics

American Academy of Physician Assistants

American College of Emergency Physicians

American College of Osteopathic Pediatricians

American College of Preventive Medicine

American Medical Association

American Nurses Association

American Osteopathic Association

American Public Health Association

Association of Immunization Program Managers

Association of Maternal and Child Health Programs

Association of State and Territorial Health Officials

Center for Pediatric Research

Centers for Medicare and Medicaid ServicesCouncil of State and Territorial Epidemiologists

Every Child by Two

Health Resources and Services Administration

Immunization Action Coalition

Infectious Diseases Society of America

National Alliance for Hispanic Health

National Asian Women's Health Organization

National Assembly on School-Based Health Care

National Association for City and County Health Officials

National Association for Pediatric Nurse Practitioners

National Association of School Nurses

National Coalition for Adult Immunization

National Foundation for Infectious Diseases

National Institute of Allergy and Infectious Diseases

National Medical Association

National Network of Immunization Nurses and Associates

National Partnership for Immunization

National Perinatal Association Partnership for Prevention

Pediatric Infectious Disease Society

Project Immunize Virginia

Society for Adolescent Medicine

Society for Teachers of Family Medicine

Vaccine Education Center at the Children's Hospital of Philadelphia

The National Vaccine Advisory Committee (NVAC)

Committee History

The National Vaccine Advisory Committee (NVAC) was chartered in 1988 to advise and make recommendations to the director of the National Vaccine Program and the assistant secretary for health, Department of Health and Human Services, on matters related to the prevention of infectious diseases through immunization and the prevention of adverse reactions to vaccines.

The NVAC is composed of 15 members from public and private organizations representing vaccine manufacturers, physicians, parents, and state and local health agencies. In addition, representatives from governmental agencies involved in health care or allied services serve as ex-officio members of the NVAC.

Committee Members

Georges Peter, MD (Chair)
Brown Medical School
Providence, RI

Ann Margaret Arvin, MD
Stanford University School of Medicine Stanford, CA

Jeffrey P. Davis, MD
Wisconsin Division of Health
Madison, WI

Michael D. Decker, MD, MPH
Aventis Pasteur
Swiftwater, PA

Patricia Fast, MD, PhD
International AIDS Vaccine Initiative
New York, NY

Fernando A. Guerra, MD, MPH
San Antonio Metropolitan Health District
San Antonio, TX

Charles M. Helms, MD, PhD
University of Iowa Hospital and Clinics
Iowa City, IA

Alan Richard Hinman, MD
The Task Force for Child Survival and Development
Decatur, GA

Ruth Katz, JD, MPH
Yale University School of Medicine
New Haven, CT

Jerome O. Klein, MD
Boston Medical Center
Boston MA

Mary Beth Koslap-Petraco, MS, CPNP Suffolk County Department of Health Services
Lindenhurst, NY

Peter R. Paradiso, PhD
Wyeth-Lederle Vaccines and Pediatric American Home Products
West Henrietta, NY

William Schaffner, MD
Vanderbilt University School of Medicine
Nashville, TN

Patricia N. Whitley-Williams, MD
Robert Wood Johnson Medical School New Brunswick, NJ

Donald E. Williamson, MD
Alabama Department of Public Health Montgomery, AL

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Steven Black, MD
Kaiser Permanente Study Center
Oakland, CA
(representing the American Association of Health Plans)

Jackie Noyes
American Academy of Pediatrics
Washington, DC
(representing the Advisory Commission on Childhood Vaccines)

David S. Stevens, MD
Emory University School of Medicine Atlanta, GA
(representing the Vaccines and Related Biological Products Advisory Committee)

Robert Daum, MD
University of Chicago Children's Hospital
Chicago, IL
(representing the Vaccines and Related Biological Products Advisory Committee)a

John F. Modlin, MD
Dartmouth Medical School
Lebanon, NH
(representing the Advisory Committee on Immunization Practices)

Karen Midthun, MD
Food and Drug Administration
Rockville, MD

Col Renata J.M. Engler
Walter Reed Medical Center
Washington, DC

Carole Heilman, PhD
National Institute of Allergy and
Infectious Diseases
Bethesda, MD

Geoffrey Evans, MD
Health Resources and Services Administration
Rockville, MD

Ruth Frischer, PhD
US Agency for International Development
Washington, DC

T. Randolph Graydon
Centers for Medicare and Medicaid Services
Baltimore, MD

Walter A. Orenstein, MD
Centers for Disease Control and Prevention
Atlanta, GA

William A. Robinson, MD
Health Resources and Services Administration
Rockville, MD

Emily Marcus Levine
Office of the General Counsel
Department of Health and Human Services
Rockville, MD

aFormer liaison representative to NVAC

How to Read a CASA Summary Report: *Just for Starters*

Introduction

What is CASA?

The Clinic Assessment Software Application, CASA, is a menu-driven relational database developed by the National Immunization Program, Centers for Disease Control and Prevention (CDC), as an assessment tool for immunization clinics and providers. CASA is used for the data entry and analysis components of a practice-based vaccination assessment. It includes reminder and recall tracking capabilities, as well as many other special features. A CASA assessment can help providers understand their current vaccination coverage levels and diagnose their immunization delivery system problems. CASA provides an extensive body of data that can be accessed and organized to suit individual practice needs.

"Just for Starters" is an introduction to reading the CASA Summary Report. More in-depth materials and training are available from the CDC National Immunization Program.

NOTE WELL: The information in *"Just for Starters"* refers only to the CASA Summary Report, NOT to the CASA Diagnostic Report. A copy of a CASA Summary Report is attached.

CASA is constantly evolving. Definitions, vaccine-specific age criteria, and diagnostic capabilities are continuously being updated to reflect changing ACIP recommendations and user needs. This is not the last word.

Important Abbreviations and Definitions

Vaccines

DTP	In CASA reports, there is no distinction between DTP, DTaP, and DT
Polio	In CASA reports, there is no distinction between OPV and IPV.
Hib	In CASA reports, there is no distinction between Hib brands.

Though the CASA analyses do not distinguish among the various types, the specific types of vaccine (e.g., IPV vs. OPV, Hib brands) can be entered into CASA.

MOGE (pronounced *moe-ghee*)

Moved Or Going Elsewhere, i.e., there is documentation that the person has moved out of the jurisdiction or is going elsewhere for services. Documentation of <u>at least one</u> of the following is required:

- Copies of the child's records were transferred to a new practice.
- A letter was received from another provider that the patient is in a new practice.
- A mailed reminder card/letter was returned by the post office with no forwarding address.
- The parent/guardian informed the practice of the intent to transfer the child's care to another primary care provider during a previous office visit, home visit, or telephone contact.

Date of Assessment

Assessment Date: the date the assessment was conducted
Common Assessment Date: When doing assessments for a *group* of practices, each practice has its own assessment date. However, when comparing the vaccination levels at the sites, one review date must be used for all sites — for fairness' sake. That somewhat arbitrarily chosen, single point in time is called the Common Assessment Date.

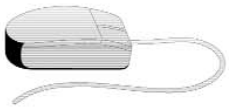
When conducting an assessment for one clinic/provider only, the Assessment Date and the Common Assessment Date are identical. The Common Assessment Date is what appears on the CASA Summary Report.

Up-To-Date (UTD)

UTD means "fully vaccinated for age." The number of doses of each vaccine that a child needs can be customized by the CASA user to reflect any criteria at any age. As a default, children are considered UTD if they have received the following number of vaccines by the ages shown. Please note that only the ages at which criteria change are shown. For example, the default criteria are the same at 12 months as they are at 7 months, the same at 18 months as at 16 months.

Age (in months)	Vaccine				
	DTP	***Polio***	***Hib***	***Hep B***	***MMR***
3	1	1	1	1	
5	2	2	2	2	
7	3	2	2	2	
16	4	3	3	3	1
24*	4	3	3	3	1

*criteria same as 16 months



UTD has two subsets:
(1) **UTD** at the benchmark ages (either 12 mos or 24 mos)
(2) **Late UTD** — i.e., UTD at the time of the CASA as sessment, but not at the benchmark age

Missed Opportunities (or Non-Simultaneous Vaccination)

Failure to give all needed vaccines simultaneously on the *last vaccination visit*. (There is a special CASA option that allows you to enter non-vaccination visits. Discussion of this option is beyond the scope of this introduction.)

"Lost" or "Lost to Follow-Up"

Eligible for vaccine, but not seen in the past 12 months

Not Eligible for Vaccine

Not eligible at 24 months because of minimum intervals needed between vaccine doses

Late Start Rates

Failure to begin office-based immunization by 3 months of age.
Late Start rate is calculated as the % of infants who do not have one DTP or polio or Hib vaccine by 3 months of age. The Hepatitis B vaccine given at birth is not counted.

Drop-Off Rates

The drop-off rate measures a sharp decline in DTP status from one age cohort to another.
The Drop-Off Rate is calculated as:

At 24 mos of age = % with DTP1 at 6 mos *minus* % with DTP4 at 24 mos
At 12 mos of age = % with DTP1 at 6 mos *minus* % with DTP3 at 12 mos

CASA Reports Immunization Levels in Several Ways

Please refer to the attached CASA Summary Report.

Not Up-To-Date:

This can be found on the flow chart after the second branching. As the words imply, this tells how many children in the cohort were missing one or more shots at the time of the assessment. The goal is to have 10% or less Not Up-To-Date.

UTD Grid and UTD Percentages Graph:

On WINCASA reports, these can be found on the pages after the flow chart.
The **UTD Grid** shows the % of children who were UTD for all needed vaccines by age.
The number of each vaccine needed to be considered Up-To-Date is included in the grid.
The "% Coverage" column shows the age-specific immunization levels.
The **UTD Percentages Graph** shows the same data in a graphic format.

UTD by vaccine dose:

CASA also reports the age-specific immunization levels for each specific dose of each vaccine (e.g., DTP4).

CASA Helps Pinpoint Specific Problems

CASA provides detailed reports on the specific diagnosis of the problem, for example, whether record-keeping and documentation are adequate, whether children start their series on time, whether and when patients drop out of the system, whether recall is used effectively, whether vaccines are given simultaneously. It can also be used to identify specific vaccines (e.g., MMR) or specific doses of vaccines (e.g., DTP4) that are a problem for the practice. This important diagnostic capability of CASA facilitates a focused — rather than a "laundry list" — approach to change at the site.

Although CASA can be used for adolescent and adult practices, the diagnostics capabilities are currently limited for these groups. Efforts to expand CASA for these groups are underway.

Moved Or Going Elsewhere (MOGE)

This can be found on the flow chart after the first branching. Take the MOGE number shown and divide it by the number of records reviewed (the very top of the flow chart).

If this is much *less* than 15% for a 24-month-old cohort, a question arises about the possibility of poor documentation. Other explanations (e.g., early archiving) are also possible — ask about these. Usually, a *low* % MOGE will be accompanied by a *high* % of children who are eligible for vaccine, but not seen in the past 12 months (i.e., "Lost" or "Lost to Follow-up"). Note that CASA does not include "MOGE" records in its analyses.

% Missed Opportunities (or Non-Simultaneous Vaccination)

This can be found on the flow chart after the third branching. If this is more than 5%, we ask why there was a failure to give all needed vaccines simultaneously on the previous vaccination visit. Good questions include:

- Is there an office **policy *against:***
  - simultaneous administration?
  - any particular vaccine (e.g., MMR or DTP4)?
  - vaccinating at the earliest time (e.g., MMR or DTP4 at 12 mos)?
- Does the whole **staff support** simultaneous administration? To pinpoint individuals who do not support simultaneous administration of vaccination, it may be useful to use a log book in which providers document their reasons for NOT immunizing simultaneously.
- How are **parents approached** when several injections are due? Are they subtly encouraged not to have several vaccines given on the same day? Providers who are not thoroughly convinced of the merits of simultaneous administration may give negative messages subconsciously. It may not be WHAT is said, but HOW it is said that dissuades parents.
- Are **parents prepared** to expect 3 or 4 inoculations at the next visit? It helps to say something like, for example, "We want you to come back in 2 months. That's Quinn's 6 month birthday -- right before Labor Day. At that visit, he'll get the same vaccines as today, plus his last hepatitis B."

% Not Eligible for Vaccine

This can be found on the flow chart after the 4th branching. It shows the proportion of children who presented, but could not be vaccinated because the minimal interval between doses had not elapsed. If this is more than 5-10%, it may be because there are many patients who start late (see "Late Start Rates" below). However, if the Late Start Rate is NOT also high, good questions include:

- Do providers follow **false contraindications**? Note that a high proportion of children falling behind between DTP1 and DTP2 may indicate use of false contraindications early in the series.
- Is an effective **reminder/ recall system** used? Note that drop-offs later in the series are more likely due to general reminder/recall deficiencies. (See "Drop-Off Rates" below)
- Is the **accelerated schedule** used?

% Last Visit >= 12 Months Ago (Lost)

This can be found on the flow chart after the last branching. A high % of patients who are eligible for vaccine, but who have not been seen in the past year may mean that there are many patients who have moved or gone elsewhere for services without

documentation. Good questions include:

- Are appointment notices, reminder messages, and recall messages simply not arriving?
  - Does the clerical staff update the record of each patient's address and phone number at every visit?
  - Are changes in patient addresses & phone numbers regularly exchanged with other programs (e.g., WIC)?
- If tracking is being done aggressively, is information from the tracking system making it to the patient's record? (e.g., if appointment notices are returned with a "No Forwarding Address" stamp, is that information recorded in the chart?)
- Is there a high Drop-Off Rate, either early or later in the 1st 2 years of life? (See "Drop-Off Rates" below)
- Is there a high % of Late Starts? (See "Late Start Rates" below) Are (managed care) children who are registered as patients at this facility aware that this is their primary care site?

Late Start Rates

This can be found on the first page of the summary report, toward the bottom. It indicates the % of children who start at > 3 months. If this is more than 10%, there are 2 main possibilities:

a) many infants are not reporting to the practice within 3 months of birth or
b) many infants who are reporting to the practice within 3 months of birth are not being vaccinated then.

To determine which it is, you can ask the staff their impressions and/or (if documentation is good) randomly select a small % of records to determine if there is a high rate of non-vaccination at the 2 month visit.

If many infants are not reporting by 3 months of age, ask;

- Would the practice's relationship with the local birthing sites and OB practices allow prenatal immunization education for parents emphasizing the importance of a timely first visit?
- Is a postpartum intervention possible? Postpartum interventions range from post cards and phone calls to new moms to hospital/home visits for "high risk" infants.
- Are (managed care) children who are registered as patients at this facility aware that this is their primary care site?

If many infants are not being vaccinated at the early visit, ask:

- Are one or more providers following false contraindications (e.g., prematurity, mild illness)?

Drop-Off Rates

This can be found on the first page of the summary report, toward the bottom and shows the % of children who begin the DTP series by 6 months of age, but fail to complete it by 12 or 24 months of age. If this is more than 10% at either age, good questions include:

- Are there only **one or two specific ages** at which the problem is most severe? Sometimes specific interventions can be focused at particular problem times during the immunization series (e.g., a reminder birthday card at one year, simultaneous administration of DTP4 with MMR).

- Is an aggressive **reminder/recall system** in place for all ages and all antigens? Reminder notices or calls should come to parents before each immunization due date. Recall messages to families who don't come in for the visit should start immediately following the missed visit and should be repeated at varying times of the day and evening. If a reminder/recall system is in place, is its importance articulated to parents. In other words, is there parent "buy-in" of the system?

- Are there **physical barriers** (e.g., long waiting times, long distances to the site, limited parking) that discourage parents from returning for needed immunizations? Client-flow observations and adjustments in office hours and appointment schedules should be considered.

- Are there **psychological barriers** that discourage parents from returning for needed immunizations? Non-affirming attitudes of office staff and general discourtesy can cause parents to procrastinate (or boycott) subsequent immunization visits. Patient surveys and suggestions boxes are often helpful in identifying barriers. They also encourage staff to be more responsive to patients.

- Are parents personally informed at each visit what additional vaccine doses are needed and when they are **expected to return** to the practice? One-on-one simple, direct personal communication can enforce the importance of remaining on schedule and produce a vivid reminder of what is due and when to return. (For example, a provider might say: "Here are the three points I want you to remember about returning for immunizations...")

- Is there **non-simultaneous administration** of vaccine? (e.g., DTP4 is not given with MMR)

Common CASA Questions

If a child got NO vaccines at his last office visit because of an invalid contraindication (e.g., minor illness), will that be counted as a "Missed Opportunity" on a CASA Summary Report?

No, not if a standard CASA assessment is done because this information would not be collected. The CASA definition of "Missed Opportunity" (also known as Non-Simultaneous Vaccination) is "failure to give all needed vaccines simultaneously on the last *vaccination visit*." If a child got NO vaccines at his last *office visit* because of an invalid contraindication, CASA would not have a record of that visit at all. The child would NOT have an apparent "Missed Opportunity."

It is important to note that the CASA assessment can be modified prior to data entry and/or the Missed Opportunity Conversation Report can be used to obtain additional information on missed opportunities.

A child got only one of the recommended vaccines at her first vaccination visit, but at the MOST RECENT vaccination visit she got all needed vaccines. Will her record be counted as a "Missed Opportunity?"

Again, not if a standard CASA assessment is done. A "Missed Opportunity" is failure to give all needed vaccines simultaneously on the last vaccination visit. If a child received only one of the recommended vaccines at her first vaccination visit, but all the needed vaccines at the last vaccination visit, CASA would report on the latest visit. The child would NOT have an apparent "Missed Opportunity."

If a newborn received Hepatitis B vaccine in the hospital, but did not show up until 4 months of age at his primary care site, will the record be counted as a Late Start?

Yes. By definition, a Late Start is failure to begin *office-based* immunization by 3 months of age. Of course, if the first set of DTP, polio, or Hib vaccines is given anywhere and then recorded in the office record, that is sufficient.

What are the age definitions used in CASA?

Age in months ➳	3	5	7	12	15	16	19	24
# of days ➳	92	153	214	366	458	488	549	732

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Atlanta, Georgia
February, 2002

CASA Summary Report

Assessment Site: Dr Leeuwenhoek - Assessment Date: 03/14/2001

Records Selected:	50	- MOGE*:	2	= Records Analyzed:	48	(24 - 35 Months)
	0	- MOGE*:	0	= Records Analyzed:	0	(12 - 23 Months)
Records Excluded:	Kids < 12 Months:		0	Kids > 35 Months:	0	Deceased: 0

IMMUNIZATION STATUS

	UTD (1)	Late UTD (1a)	NOT UTD -- Reasons:			
			MISSED OPPORTUNITIES for Simultaneous Vax?			
			YES (2)	NO		
				Eligible For Vaccine? Yes - Last Visit Was:		
				< 12 Mo. Ago	>= 12 Mo. Ago	No (3)
24 - 35 Mo. Age Group @ 24 Mo. Of Age: (4)	58.33	2.08	4.17	2.08	33.33	0.00
@ 12 Mo. Of Age:	60.42	N/A	2.08	37.50	N/A	0.00
12 - 23 Mo. Age Group @ 12 Mo. Of Age:	******	******	*********	********	N/A	********

1. UTD (Up-To-Date) By 12 Months = 3 DTP, 2 POLIO, 2 HIB, 2 Hep B
   UTD By 24 Months = 4 DTP, 3 Polio, 1 MMR, 3 HiB, 3 HepB

1a. Has 3 DTP, 2 POLIO, 2 HIB, 2 HepB By Date Of Assessment But NOT By 12 Months
   **Has 4 DTP, 3 Polio, 1 MMR, 3 HiB, 3 HepB By Date of Assessment, But Not By 24 Months

2. Missed Opportunity = Failure To Administer Needed Vaccines Simultaneously On Last Visit

3. Not Eligible For Vaccine On Date of Assessment Because Of Minimum Spacing Needed Between Doses.

4. Children Who Could Have Been Brought Up-To-Date With 1 Additional Visit By

24 Months Of Age: #	9	18.75	%
Number With 1 Vaccine Needed:	6	66.67	%
Number With 2 Vaccines Needed:	1	11.11	%
Number With 3 Vaccines Needed:	2	22.22	%
Number With 4+ Vaccines Needed:	0	0.00	%

****

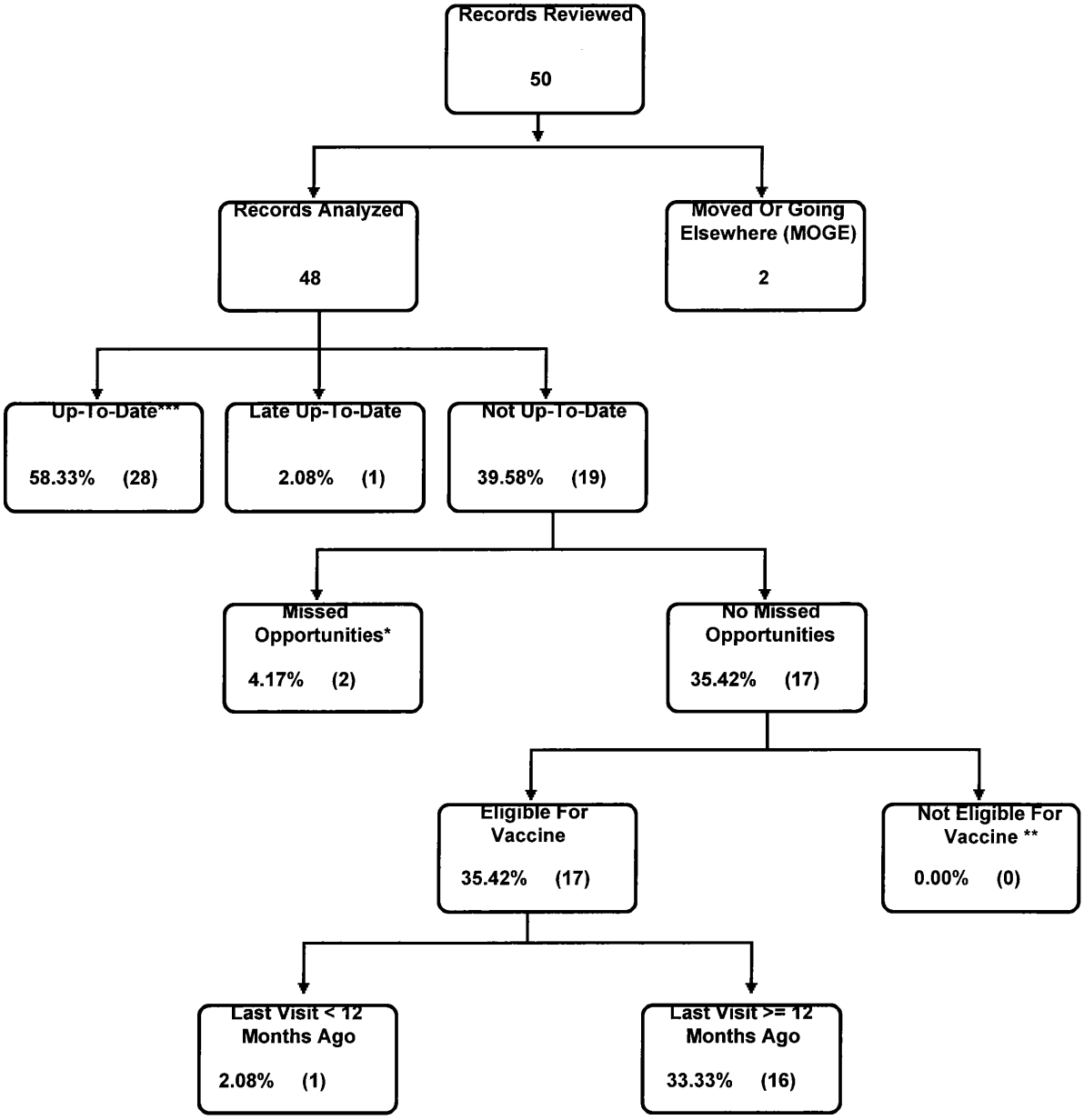
LATE - START RATES (Beginning > 3 Months of Age):	18.75	% (24 - 35 Month Age Group)
(Beginning > 3 Months of Age):	*********	% (12 - 23 Month Age Group)
DROP - OFF RATES* 24 - 35 Month Age Group:	29.17	% (24 - Month Status)
24 - 35 Month Age Group:	27.08	% (12 - Month Status)
12 - 23 Month Age Group:	0	% (12 - Month Status)

* MOGE = Moved (out of jurisdiction) Or Going Elsewhere (for services).
* Drop - Off Rate @ 24 Months of Age = %DTP1 @ 6 Mo. - %DTP4 @ 24 Mo.
* Drop - Off Rate @ 12 Months of Age = %DTP1 @ 6 Mo. - %DTP3 @ 12 Mo.
DTP = DTP/DT/DTaP
** Late UTD @ 24 Months May Include MMR Given Before 1 Year

Date Run: 02/12/2002 Time Run: 06:45:51

Immunization Status At 24 Months Of Age For Dr Leeuwenhoek

For Kids Age 24-35 Months Of Age



* Failure To Administer Needed Vaccines Simultaneously On Last Immunization Visit

** Not Eligible For Vaccine Because Of Minimum Spacing Needed Between Doses

*** Up-To-Date Is 4 DTP, 3 Polio, 1 MMR, 3 HiB, 3 HepB

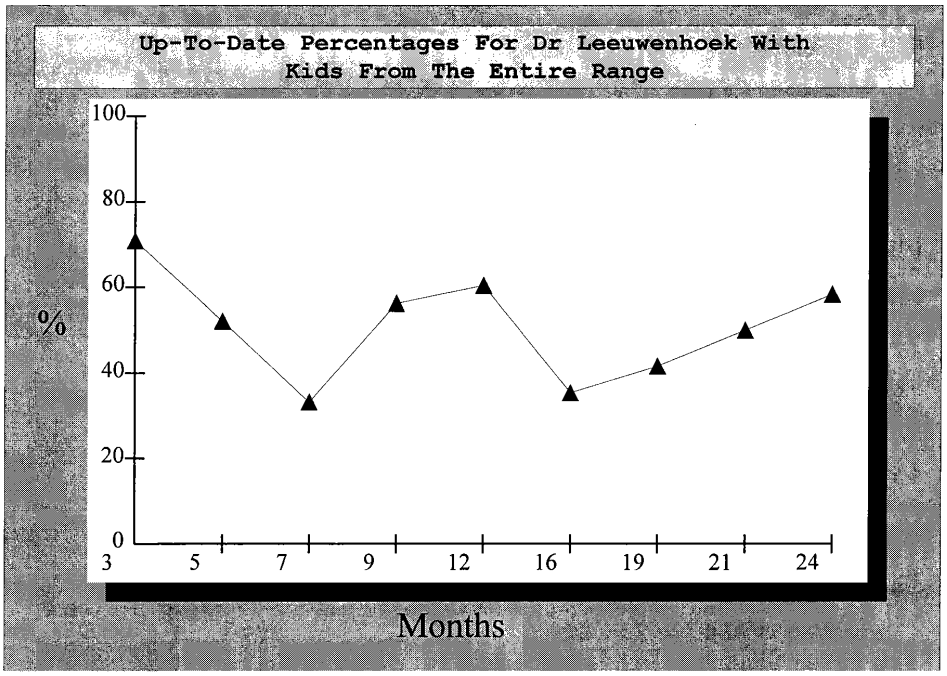
Date Run: 02/12/2002 Time Run: 06:46:05

Up-To-Date Chart For Dr Leeuwenhoek; Assessment Date: 03/14/2001

The Denominator For This Report Is The Entire Range Of Kids

UTD Grid	DTP	POLIO	Hib	HepB	MMR	%Coverage
At 3 Months:	1	1	1	1		70.83
At 5 Months:	2	2	2	2		52.08
At 7 Months:	3	2	2	2		33.33
At 9 Months:	3	2	2	2		56.25
At 12 Months:	3	2	2	2		60.42
At 16 Months:	4	3	3	3	1	35.42
At 19 Months:	4	3	3	3	1	41.67
At 21 Months:	4	3	3	3	1	50.00
At 24 Months:	4	3	3	3	1	58.33

Date Run: 02/12/2002 Time Run: 09:05:46


Up-To-Date Percentages For Dr Leeuwenhoek With Kids From The Entire Range
100
80
60
%
40
20
0
3
5
7
9
12
16
19
21
24
Months

Single Antigen Assessment Results for Dr Leeuwenhoek for the Dates-of-Birth Between 03/01/1998 and 02/28/1999 in the Client files

Location:	**Your Town, US**	**Total Records In Clinic:**	270
Reviewer:	**IDB**	**Records Sampled:**	50
Date of Assessment:	**03/14/2001**	**Records Outside Of Range:**	0
Common Review Date:	**03/01/2001**	**Moved Or Gone Elsewhere:**	2
Assessment Range:	**24 To 035 Months**	**Total Records Reviewed:**	48

Months:	3	5	7	12	16	19	24
	#|%	#|%	#|%	#|%	#|%	#|%	#|%
DTP1:	37|77	44|92	47|98	48|100	48|100	48|100	48|100
DTP2:		27|56	35|73	41|85	45|94	47|98	47|98
DTP3:			17|35	31|65	38|79	38|79	40|83
DTP4:					18|38	21|44	30|63
Polio1:	38|79	44|92	47|98	48|100	48|100	48|100	48|100
Polio2:		27|56	35|73	41|85	45|94	47|98	47|98
Polio3:			5|10	10|21	33|69	34|71	38|79
MMR1:				4|8	37|77	41|85	43|90
HIB1:	36|75	41|85	44|92	46|96	47|98	47|98	48|100
HIB2:		26|54	34|71	38|79	43|90	45|94	45|94
HIB3:			15|31	29|60	35|73	35|73	36|75
HIB4:					21|44	24|50	29|60
HB1:	45|94	45|94	46|96	46|96	46|96	46|96	47|98
HB2:	36|75	42|88	45|94	45|94	46|96	46|96	46|96
HB3:			23|48	34|71	41|85	44|92	44|92
RTV1:	0|0	0|0	0|0	0|0	0|0	0|0	0|0
RTV2:		0|0	0|0	0|0	0|0	0|0	0|0
RTV3:			0|0	0|0	0|0	0|0	0|0
VZV1:					29|60	32|67	33|69
CPNU1:	0|0	0|0	0|0	0|0	0|0	0|0	0|0
CPNU2:		0|0	0|0	0|0	0|0	0|0	0|0
CPNU3:			0|0	0|0	0|0	0|0	0|0
CPNU4:					0|0	0|0	0|0
DENOM.	48	48	48	48	48	48	48

*DTP = DT/DTP/DTAP
*Polio = IPV/OPV
*MMR = MMR >= 365 Days
*VZV = VZV >= 365 Days

CPNU = Childhood Pneumococcal
0 Had ChickenPox

Date Run: 02/12/2002 Time Run: 06:51:32

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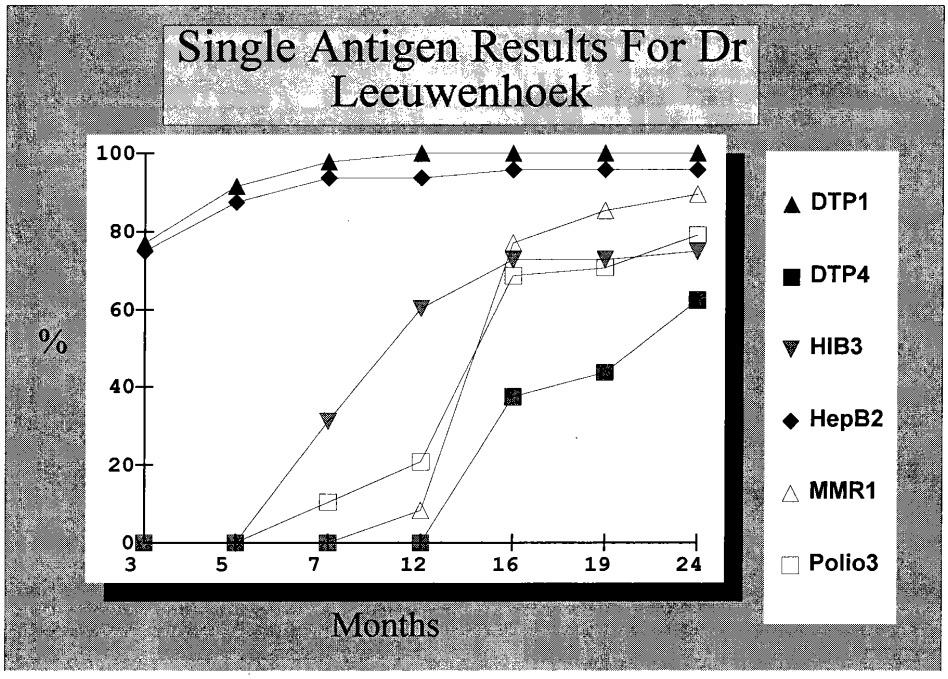
Single Antigen Results For Dr Leeuwenhoek
100
80
60
40
20
0
%
3
5
7
12
16
19
24
Months
DTP1
DTP4
HIB3
HepB2
MMR1
Polio3